

REPORT DOCUMENTATION PAGE

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Subject: REPORT FOR F49620-97-1-0397

Ms. Domineck: Please see the stuff below. Tom Geers

>Date: Tue, 9 Mar 99 7:53:50 EST
>X-Priority: 3 (Normal)
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>X-Incognito-SN: 789
>X-Incognito-Version: 4.11.23
>MIME-Version: 1.0
>Status:
>
>Thanks for the Final Report. I would indeed appreciate a copy of the
>proceedings. Thank you.
>
>Dr. Arje Nachman
>AFOSR/NM
>801 North Randolph
>Rm 732
>Arlington, VA 22203-1977
>(703)696 8427 FAX(703)696 8450

>-----

>Original Text
>From: Thomas L. Geers <geers@spot.colorado.edu>, on 3/8/99 6:53 PM:
>Dear Dr. Nachman:
>
>Since Mark Ablowitz forwarded your e-mail to me, I've been poking our
>Office of Contracts and Grants. Jan Farrar in that office has told me that
>my e-mail report to you on 26 December 1997 should have sufficed and that
>your system should know about it if you forwarded a copy with your approval
>to Jennifer Bell, your contract person at 767-6836. Below is a copy of the
>report that I e-mailed you on 12/26/97. If it is not sufficient, please
>let me know.
>
>Although I don't see anything in the contract regarding the bound symposium
>proceedings, I presume that you would be interested in receiving a couple
>of copies. If so, please reply with your snail-mail address.
>
>Thanks again for your support of the symposium.
>
>Tom Geers
>
>***
>
>Symposium Report (IUTAM 97-11)
>Thomas L. Geers, Ph.D.
>University of Colorado
>Boulder, CO 80309, USA
>geers@spot.colorado.edu
>

>IUTAM SYMPOSIUM ON COMPUTATIONAL
>METHODS FOR UNBOUNDED DOMAINS

>
>27-31 July 1997, University of Colorado, Boulder, CO

>
>Thirty-seven researchers in acoustics, aeronautics, elastodynamics,
>electromagnetics, hydrodynamics and mathematics participated in this
>interdisciplinary symposium. The participants represented twelve
>countries, as follows: Belgium (1), Canada (1), France (1), Germany (1),
>Greece (1), Israel (2), Japan (1), New Zealand (2), Sweden (1), Switzerland
>(3), United Kingdom (2), United States of America (21). Eight of the
>participants were young investigators invited by members of the Advisory
>and Scientific Committees.

>
>
>Committees

>-----

>
>Initially, an Advisory Committee was formed to prepare the IUTAM symposium
>proposal. The members of this committee are

>
>T.L. Geers, Chairman, University of Colorado, USA
>J. Bielak, Carnegie Mellon University, USA
>D. Givoli, Rensselaer Polytechnic University, USA (visiting from Israel)
>P.M. Pinsky, Stanford University, USA

>
>The members of the IUTAM Scientific Committee are

>
>T.L. Geers, Chairman, University of Colorado, USA
>R.J. Astley, University of Canterbury, New Zealand
>G.A. Athanassoulis, Nat'l Tech. Univ. of Athens, Greece
>P. Bettess, University of Durham, UK
>B.A. Boley, Columbia University, USA
>B. Gustafsson, Uppsala University, Sweden
>M.A. Ilgamov, Scientific Centre of Kazan, Russia
>S. Kobayashi, Kyoto University, Japan
>G. Kriegsmann, New Jersey Inst. of Tech., USA
>M. Lenoir, Ecole Nat. Sup. de Tech. Avancees, France
>E. Turkel, Tel-Aviv University, Israel

>
>All members of the Advisory Committee and six members of the Scientific
>Committee attended the symposium.

>
>
* >Program

>-----

>
>The symposium was regarded by all as a resounding success. Disciplinary
>and semantic barriers were pushed aside as lively discussions accompanied
>the presentations. About two-thirds of the papers focused on the classical
>wave equation of acoustics, as this is the simplest governing equation of
>the types considered. However, three papers dealt with hydrodynamic
>surface waves, two with electromagnetic waves, three with elastodynamic
>waves, and four with waves in aerodynamics. Approximately two-thirds of
>the papers addressed steady-state problems, with the rest treating problems
>in the time domain.

>
>A key unifying aspect of the symposium was the creation of four working
>groups that labored in parallel to formulate benchmark problems for
>evaluating computational boundaries. The working groups reviewed the
>papers presented each day, searching for benchmark candidates. Then they
>considered other possibilities and organized the ensemble into logical
>categories. At the end of the symposium, each group presented its
>benchmark candidates to the assembly of participants, which subsequently

>made a first cut at consolidating the benchmarks. The Scientific Program
>was as follows:

>

>MONDAY, 28 July: Ten Lecture Papers

>

>J.A. Bettess & P. Bettess, "New Mapped Wave Infinite Element and
>Diffraction of Waves by Elliptical Cylinders of Varying Aspect Ratio"

>

>B. Engquist & H.-K. Zhao, "Absorbing Boundary Conditions for Domain
>Decomposition"

>

>R.J. Astley, "Recent Advances in Applying Wave-Envelope Elements to
>Unbounded Wave Problems"

>

>J.P. Wolf & C. Song, "The Scaled Boundary Finite-Element Method: State of
>the Art"

>

>P. Monk & F. Collino, "Optimizing the Perfectly Matched Layer"

>

>G.A. Athanassoulis & K.A. Belibassakis, "Water-Wave Green's Function for a
>3D Uneven-Bottom Problem with Different Depths $x \Rightarrow$ Infinity and $x \Rightarrow$
>-Infinity"

>

>S.I. Hariharan & T. Hagstrom, "A Systematic Approach for Constructing
>Asymptotic Boundary Conditions for Wave-Like Equations"

>

>L. Demkowicz and F. Ihlenburg, "Proof of Convergence for the Coupled
>Finite/Infinite Element Methods for Helmholtz Exterior Boundary-Value
>Problems"

>

>S.V. Tsynkov, "On the Combined Implementation of Global Boundary Conditions
>with Central Difference Multigrid Flow Solvers"

>

>R.L. Higdon, "Absorbing Boundary Conditions for Dispersive Waves"

>

>90-Minute Meetings of Four Benchmark Working-Groups

>

>TUESDAY, 29 July: Ten Lecture Papers

>

>D. Givoli & I. Patlashenko, "Optimal Local Artificial Boundary Conditions"

>

>I.C. Mathews & S. Newhouse, "A Comparison between Time and Frequency Domain
>Approaches for Rigid Body Scattering Problems"

>

>S.M. Grace & A.D. Pierce, "Reduction of the Complexity of the Intrinsically
>Nonlinear Problem of Aerodynamic Sound Generation in an Unbounded Domain"

>

>D.S. Burnett & R.L. Holford, "Multipole-Based 3-D Infinite Elements: An
>Ellipsoidal Acoustic Element and a Spherical Electromagnetic Element"

>

>J. Bielak, L.F. Kallivokas & R.C. MacCamy, "Absorbing Boundaries for
>Acoustic Wave Propagation Problems"

>

>G.A. Kriegsmann, "Acoustic and Electromagnetic Scattering by Large Resonant
>Structures"

>

>A.A. Oberai, M. Malhotra & P. Pinsky, "Implementing Highly Accurate
>Non-Reflecting Boundary Conditions for Large Scale Problems in Structural
>Acoustics"

>

>M.E. Hayder & H.L. Atkins, "Experience with PML Boundary Conditions in
>Fluid-Flow Computations"

>

>L. Gaul & Martin Schanz, "Calculation of Transient Response of Viscoelastic

>Unbounded Domains by Direct Boundary Element Method"
 >
 >I. Harari, "A Variational Formulation for Partitioned Exterior Problems"
 >
 >90-Minute Meetings of Four Benchmark Working-Groups
 >
 >WEDNESDAY, 30 July: Six Lecture Papers and Seven Poster Papers
 >
 >C.A. Felippa, "Coupling DAA-Boundary and Finite-Element Models"
 >
 >E. Watanabe & T. Utsunomiya, "A Response Analysis of Very Large Floating
 >Structure under Airplane Landing by FEM and a Sponge Layer for the
 >Unbounded Domain"
 >
 >J.-P. Coyette and L. Cremers, "A Practical Comparison of Finite Element and
 >Boundary Element Formulations for Modeling Sound Radiation from Elastic
 >Plates"
 >
 >T. Hagstrom, "Exact and High-Order Boundary Conditions in the Time Domain"
 >
 >K.R. Fyfe & A. Muradali, "Wave vs. Geometric Based Modeling of Barriers
 >with Atmospheric Effects"
 >
 >T.L. Geers, "Singly and Doubly Asymptotic Computational Approximations"
 >
 >C.J. Damaren, "Approximation of Transient Hydrodynamics on Unbounded
 >Domains Using Rational Functions"
 >
 >T.A. Driscoll & B. Fornberg, "Uses of the Berenger PML in Pseudospectral
 >Methods for Maxwell's Equations"
 >
 >K. Gerdes, "Infinite Element Methods"
 >
 >M.N. Guddati & J.L. Tassoulas, "Transient Analysis of Wave Propagation in
 >Unbounded Media: Space-Time Methods and Continued-Fraction Implementations"
 >
 >L.F. Kallivokas, J. Bielak & R.C. MacCamy, "Absorbing Boundary Conditions
 >of Arbitrary Shape for the Three-Dimensional Wave Equation"
 >
 >A.J. Safjan, "Progress on Highly Accurate Non-Reflecting Boundary
 >Conditions for Finite Element Simulations of Transient Acoustics Problems"
 >
 >C. Song & J.P. Wolf, "The Scaled Boundary Finite-Element Method: Future
 >Developments"
 >
 >THURSDAY, 31 July
 >
 >90-Minute Meetings of Four Working-Groups
 >30-Minute Preparation of Working-Group Presentations
 >90-Minute Assembly Workshop (W-G Presentations)
 >90-Minute Assembly Workshop (Benchmark Consolidation)
 >
 >
 >Proceedings
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 >
 >Authors brought with them 4-to-10-page abstracts, which were promptly
 >copied and distributed to all participants. The symposium proceedings,
 >which will be published by Kluwer Academic Publishers, is in final
 >preparation. It begins with a lead article documenting the benchmark
 >problems defined during the working-group meetings and assembly workshops.
 >This is followed by 4-to-10-page abstracts of the thirty-three papers
 >presented at the symposium.
 >

>
>Financial Support
>-----
>
>The symposium participants greatly appreciate the financial support
>provided by the following organizations:
>
>Air Force Office of Scientific Research - \$15,000
>International Association for Computational Mechanics - \$1,500
>International Union of Theoretical and Applied Mechanics - \$7,000
>Kluwer Academic Publishers - \$600
>National Aeronautics and Space Administration - \$15,000
>National Science Foundation - \$10,000
>Office of Naval Research - \$5,000
>University of Colorado - \$2,000
>
>TOTAL - \$56,100
>
>
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>-----
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>P. Bettess, University of Durham, UK
>J. Bielak, Carnegie Mellon University, USA
>D.S. Burnett, Bell Laboratories, Lucent Technologies, USA
>J.-P. Coyette, LMS-Numerical Technologies, BELGIUM
>C.J. Damaren, University of Canterbury, NEW ZEALAND
>L. Demkowicz, University of Texas, USA
>T.A. Driscoll, University of Colorado, USA
>C.A. Felippa, University of Colorado, USA
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